

General Remarks

By the above amendment, Applicant has renumbered original Claims 7-13 and 20-26 as now Claims 28-41 respectively and has replaced Claims 1-6, 14-19, and 27 with new Claims 42-54. Applicant has rewritten rejected claims to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention patentably over the prior art.

I have sold the rights to this invention to Ole K. Nilssen. Certain patent rights that result from this application have been subsequently licensed to Juno Lighting, Inc.

Drawing Objections

The last Office Action objected to the drawings, stating, "3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the insulation-displacement connector (claims 24 and 25) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance."

Amendments Related to Drawings

Applicant has reviewed the drawings. In Applicant's opinion the feature of the insulation-displacement connector is shown in the Figs. 2, 3, and 4. The insulation-displacement connector is an integral part of the ballasted-socket assemblies 24, 54 and 68. The high-frequency input terminals #1 and #2 (34 & 36) form the electrical contacts that pierce or displace the insulation of the high-frequency output cord 18.

Referring to fig. 2 the cord 18 is laid in the recessed channel 30. The slide-on cover 26 is placed over base tabs 30 and slid forward, forcing the cord down onto the input terminals 34 and 36. Thus making electrical contact with the conductors in the cord.

Referring to fig. 3 and 4 the cord 18 is laid in the recessed channel 56 or 58 and a base cover plate 60 is placed over the cord. When this assembly is then screwed to the bottom of

a cabinet or shelf, the input terminals 34 and 36 are forced into the cord 18. Thus making electrical contact with the conductors in the cord.

Claims Objected to because of informalities

The last Office Action objected to Claim 26, stating, "Claim 26 is objected to because of the following informality: the phrase "there to" in line 3 should be one word. Appropriate correction is required."

Amendments related to informalities

Original Claim 26 is now Claim 41. Applicant has made the correction to now Claim 41 that was suggested by the Examiner.

Claims Rejected Under 35 USC 112

The last Office Action rejected Claims 7-13 and 20-26 as being indefinite, stating, "5. Claims 7-13 and 20-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "high-frequency" in claims 7, 20, 23, 24 and 26 is a relative term which renders the claim indefinite. The term "high-frequency" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 8 is indefinite for reciting the limitation "wherein the luminaire can be mounted...." A claim should specify what exactly the invention is, not what it can be. The word "can" used in this sense is not appropriate claim language.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are the placement of the enclosure within the luminaire and its relationship to the other elements of the luminaire.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationship is the placement of the support bracket.

Claim 20 recites the limitation "the interconnecting wiring" in lines 4-6. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 is indefinite for reciting the limitation "includes a mounting tab." The phrase "mounting tab" is not defined. For purposes of this office action, the phrase "mounting tab" is assumed to refer to the mounting base.

Claim 23 recites the limitation "the interconnection between the input terminals and the ballasting circuitry" in lines 8 and 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "the interconnection between ballasting circuitry and the output terminals" in lines 9 and 10. There is insufficient antecedent basis for this limitation in the claim.

Claims 24 and 25 are indefinite for referring to the use of an insulation-displacement connector. There is no support in the specification for the content of these claims. If the Applicant disagrees, the appropriate page and line number(s) should be cited.

Claim 25 recites the limitation "the insulation-displacement connector" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: 1) the placement of the luminaires with respect to the cable; 2) the relationship between the high-frequency power source and the interconnecting cable; and 3) the relationship between high-frequency power source and the luminaires.

Claim 26 is indefinite for reciting the limitation "the system further characterized in that multiple luminaires can be powered" in line 4. A claim should specify what exactly the invention is, not what it can be. The word "can" used in this sense is not appropriate claim language.

Claim 26 is indefinite for reciting the limitation "without cutting the interconnecting cable" in line 5. The contacts cut into the insulating portion of the power cord to form an electrical connection with the wire, so it is not clear what is meant by this claim. For purposes of this office action, it is assumed that "cutting" means to cut the cable into two separate pieces as opposed to merely cutting into the insulating portion of the cable.

Claims 9-11 and 22 are necessarily included due to their dependency.

6. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not say how to make the power factor of the power being drawn by the luminaire greater than 80%."

Amendments Related to 35 U.S.C. 112

1) The term "high-frequency" in claims 7, 20, 23, 24 and 26 is defined in the specification at the very end under Definitions (page 17, line 10), "high-frequency: frequencies greater than 10 kHz". Applicant prefers to define the term "high-frequency" once in the specification and not have to repeat the longer definition each time in the claims. Applicant is willing to change this format if Examiner has a strong preference to repeat the term "frequencies greater than 10 kHz" in each of the claims.

2) With respect to Claims 24 and 25 being indefinite for referring to the use of an insulation-displacement connector, and there being no support in the specification for the content of these claims, Applicant disagrees with Examiner in that Applicant has provided a definition for insulation-displacement connection in the Specification under Definitions on page 17, lines 12-15. Applicant has added the limitation to original Claim 25, "an insulation-displacement connector being a connector capable of making an insulation-displacement type connection" to make the tie in the definition of connection to the connector. If Examiner still feels this is inadequate, Applicant is willing to repeat the definition given in the specification in each of the affected claims.

3) With respect to Claims 26, Applicant has rewritten original Claim 26 now Claim 41 to define the originally omitted structural cooperative relationships between: 1) the placement of the luminaires with respect to the cable; 2) the relationship between the high-

frequency power source and the interconnecting cable; and 3) the relationship between high-frequency power source and the luminaires, as follows:

A high-frequency under-cabinet lighting system comprising: a high-frequency power source, an interconnecting cable, and multiple luminaires;
the high-frequency power source being connected to and powered from a standard utility power line and having a high-frequency power output;
the interconnecting cable being connected to said high-frequency power output;
the interconnecting cable being supplied from a manufacturing facility with no luminaires connected thereto;
the system further characterized in that the system is installed by an installer;
during installation, luminaires are connected to a single interconnecting cable at multiple points along the interconnecting cable using an insulation-displacement connection; and
the locations of the luminaires being determined by the installer.

4) With respect to original Claim 10 Applicant has eliminated the limitation "... power factor of the power being drawn by the luminaire greater than 80%." and substituted the following limitation:
ballasted-socket assembly is provided with a socket capable of receiving and supporting a long single-ended lamp;
said luminaire requiring a support bracket to properly support the long single-ended lamp;
said support bracket being provided as an integral part of the ballasted-socket assembly.

5) Applicant has modified the original Claims 7-13 now Claims 28-34 and original Claims 20-26 now Claims 35-41 to overcome Examiners rejections under 112. Accordingly Applicant submits that the claims do comply with 35 USC 112 and therefore respectfully requests withdrawal of these objections.

Claim Rejections -35 USC § 102

The last Office Action rejected Claims 7, 8, 9, and 12 stating, "8.Claims 7, 8, 9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Connan (U.S. Patent 3,609,643)."

General Statement regarding Connan ('643)

There are at least five obvious differences between Connan ('643) and instant invention:

- 1) Connan ('643) discloses the installation of very simple sockets for incandescent lamps (This invention relates ... particularly to a new and useful midget light string {Col 1, lns 4-6}, ... electric incandescent light bulbs 16 ... {Col 1, lns 49}, see also item 16 in fig 1). The instant invention discloses the installation of ballasted-socket assemblies, which actually contain circuitry used to power gas-discharge lamps.
- 2) Connan ('643) discloses powering the lamps from the 60 Hz power line (The electric power cord assembly includes the well known attachment plug 13 ... {Col 2, lns 33-34}, see also item 13 in fig 1). The instant invention powers the ballasted-socket assemblies from a source of high-frequency power (10 kHz or higher).
- 3) Connan ('643) discloses sockets that are wired in series with one another (... a plurality of sockets 12 are hooked up in series ... {Col 2, lns 36-37}, see also item 317 in fig 10). The instant invention discloses ballasted-socket assemblies that when installed are connected in parallel with each other.
- 4) Connan ('643) discloses sockets that are connected to the electrical power cord assembly in a factory (It is among the objects of the present invention to improve ... and to provide structures and methods of the class described which are lower in cost of manufacture and assembly, ... {Col 1, lns 14-18}). The instant invention is designed to have the ballasted-socket assemblies installed in the field.
- 5) Connan ('643) discloses sockets intended to be installed at predetermined locations along the electrical power cord (... the wire 94 and its insulative jacket 91 is cut out at predetermined locations 11 therealong. {Col 2, lns 41-43}). The

instant invention is intended to have the ballasted-socket assemblies installed at user determined and not at predetermined locations.

Amendments Related to 35 U.S.C. 102

The Rejection Of Claim 7 On Connan Is Overcome

The last Office Action rejected original Claims 7 as being anticipated by Connan ('643), stating: "Regarding claim 7, Connan discloses a luminaire suitable for connection to and being powered from a high-frequency power source. The luminaire includes a pair of input terminals (first and second contact members, reference numbers 22 and 24), the input terminals being located in a channel (walls, reference numbers 32 and 34, Figs. 1 and 2), the channel being of such a design as to receive an interconnecting cord (electric power cord assembly, reference number 14) comprising to parallel conductors encased within and separated from each other by a common insulating sheath (Fig. 1)."

Claim 7 has been rewritten as now Claim 28 to define patentably over this reference. Applicant respectfully requests reconsideration of this rejection, as now Claim 28, for the following reasons:

- 1) Connan discloses attachment of sockets for incandescent lamps and does not make any reference to, or suggestion that a ballasting circuit be incorporated within the socket to power a gas-discharge lamp.
- 2) Connan makes no reference to, or suggestion that the lamps be powered from anything other than a normal 50 or 60 Hz power line source. In fact, Connan shows a conventional power cord plug 13 in Connan fig. 1 and states, "The electric power cord assembly includes the well-known attachment plug 13 ...". In addition, contrary to the case of using high-frequency with gas-discharge lamps that require a ballasting circuit, there would be no advantage to powering incandescent lamps from a high-frequency, only the disadvantage of the much higher cost of providing a high-frequency power source.
- 3) Connan discloses connecting the sockets for the incandescent lamps in series with one another. Instant invention uses parallel connection to the high-frequency power cord. Applicant has added the following limitation to Claim 28 to clarify

how multiple ballasted-socket assemblies are connected to the high-frequency output cord, "the high-frequency input terminal #1 making connection to one of the two parallel conductors; the high-frequency input terminal #2 making connection to the second of the two parallel conductors"

- 4) Connan discloses a method to lower the cost of manufacture and assembly, which is meant for factory assembly. Instant invention is meant to be provided as a collection of parts to be installed in the field.
- 5) Connan discloses sockets to be located at predetermined locations along the power cord. Instant invention is intended to have the ballasted-socket assemblies located at random locations along the high-frequency output cord as determined by the specific application.
- 6) In summary Connan ('643) discloses a means to factory assemble sockets for miniature incandescent lamps connected in series with one another, similar to what are commonly used for Christmas tree decorations, onto a power cord at fixed spacing and to be powered from a 60 Hz power source. Instant invention discloses ballasted-socket assemblies that contain circuitry to properly ballast a gas-discharge lamp, that are adapted to be powered from a high-frequency power source and connected during the final installation in parallel across a high-frequency output cord at random locations as determined by the specific application.
- 7) These physical features of now Claim 28 produce new and unexpected results and hence are unobvious and patentable over the Connan reference. Applicant respectfully requests reconsideration of this rejection.

The Rejection Of Claim 8 On Connan Is Overcome

The last Office Action rejected original Claim 8 stating, "Concerning claim 8, the claim consists of process limitations that are not given patentable weight. See M.P.E.P. 2113."

Original Claim 8 has been rewritten as now Claim 29. Applicant has added the following structural limitations to now Claim 29:

said ballasted-socket assembly is provided with a base for mounting;

said base having a recessed channel;
said recessed channel being accessible after the ballasted-socket assembly is
mounted in place; and
said ballasted-socket assembly being adapted to be mounted in place prior to
being connected to the high-frequency output cord.

These physical features of now Claim 29 produce new and unexpected results and hence are unobvious and patentable over the Connan reference. Applicant respectfully requests reconsideration of this rejection.

The Rejection Of Claim 9 On Connan Is Overcome

The last Office Action rejected original Claim 9 now Claim 30 stating,
“Regarding claim 9, the claim consists of process limitations that are not given patentable weight. See M.P.E.P. 2113.”

Applicant has added the following structural limitations to now Claim 30:

said ballasted-socket assembly is provided with a mounting base;
said mounting base having a recessed channel;
said recessed channel adapted for receiving the high-frequency output cord; and
said ballasted-socket assembly being adapted to be mounted in place after
receiving the high-frequency output cord.

These physical features of now Claim 30 produce new and unexpected results and hence are unobvious and patentable over the Connan reference. Applicant respectfully requests reconsideration of this rejection.

The Rejection Of Claim 12 On Connan Is Overcome

The last Office Action rejected original Claim 12 now Claim 33 stating,
“Concerning claim 12, Connan discloses an enclosure which is non-conductive (sleeve element, reference number 26).”

Applicant has changed original Claim 12 to now Claim 33 as follows:

The luminaire described in claim 28, wherein the ballasted-socket assembly is
adapted to power a compact fluorescent lamp.

The physical features of now Claim 33 produce new and unexpected results that

are not disclosed in Connan and hence are unobvious and patentable over the Connan reference. Applicant respectfully requests reconsideration of this rejection.

The Rejection Of Claim 26 On Nilssen Is Overcome

The last Office Action rejected original Claim 26 stating, "Claim 26 is rejected under 35 U.S.C. 102(b) as being anticipated by Nilssen (U.S. Patent 4,631,648).

Regarding claim 26, Nilssen discloses a modular suspended ceiling lighting system.

The lighting system includes a high-frequency power source (abstract), an interconnecting cable(track conductor, reference character TC) and multiple luminaires (reference characters SFLF),the interconnecting cable being supplied with no luminaires connected thereto (inherent), the system further characterized in that multiple luminaires can be powered from the same interconnecting cable (TC) without cutting the interconnecting cable (Figs. 1 and 2). Supplying the interconnecting cable without luminaires being connected thereto is considered to be inherent, because the track conductors would naturally be supplied without anything attached to them."

Applicant has changed original Claim 26 to now Claim 41 as follows with the changes incorporated to overcome the 112 rejections already incorporated and not highlighted:

41. A high-frequency under-cabinet lighting system comprising: a high-frequency power source, ~~ana~~ flexible interconnecting cable, and multiple luminaires; the high-frequency power source being connected to and powered from a standard utility power line and having a high-frequency power output; the flexible interconnecting cable being connected to said high-frequency power output; the flexible interconnecting cable being supplied from a manufacturing facility with no luminaires connected thereto; and the system further characterized in that the system is installed by an installer;

during installation, a plurality of luminaires are connected to a single flexible interconnecting cable at multiple points along the interconnecting cable using an insulation-displacement connection;
the locations of the luminaires being determined by the installer; and
said locations not being limited to specific locations determined by grid system,
such as in a suspended ceiling.

Applicant has added the limitation “flexible” to the interconnecting cable.

Nilssen’s ‘648 patent discloses a ceiling system that uses T-bars with an integral power track similar to that used in a track lighting system, which Nilssen refers to as T-bar-track. Nilssen ‘648 states, “The power tracks fastened onto the bottom of the T-bars have receptacle slots on their sides ...” (Col 3, lns 13-14). Therefore Nilssen ‘648 does not disclose luminaires being connected to an interconnecting cable using an insulation-displacement connection. It shows luminaires being connected to a rigid power track having a slot receptacle on its side. Thus instant invention is distinguished over Nilssen ‘648 on several counts:

1. Nilssen ‘648 distributes the power to the luminaires via a power track that has a receptacle slot provided on its side to receive a plug for connection similar to that of a track lighting system. Instant invention uses an insulated cable with no receptacle slot.
2. Nilssen ‘648 distributes the power to the luminaires via a rigid power track that is made part of a T-bar, which is used to support a suspended ceiling. Instant invention uses a flexible cable to distribute power. Applicant has added the “flexible” limitation to the term “interconnecting cable” to emphasize this distinction.
3. Nilssen ‘648 makes connections between the power track and the luminaire using plug and receptacle arrangement. Instant invention uses an insulation-displacement-connector to make the connection.
4. With instant invention the luminaire can be located virtually anywhere along the cable. In Nilssen ‘648, the locations of the luminaire are limited by the grid pattern of the suspended ceiling system.

The physical features of now Claim 41 produce new and unexpected results and hence are unobvious and patentable over the Nilssen reference. Applicant respectfully requests reconsideration of this rejection.

Claim Rejections -35 USC ~ 103

Amendments Related to 35 U.S.C. 103

The Rejection Of Claim 10 On Connan In View of Smallwood Is Overcome

The last Office Action rejected original Claim 10 stating, "Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Connan in view of Smallwood et al. (U.S. Patent 5,485,057).

Regarding claim 10, Connan does not disclose a power factor of the power being drawn by the luminaire being greater than 80%. Smallwood et al. discloses a power factor of 99%.

It would have been obvious to one of ordinary skill in the art to use the techniques disclosed in Smallwood et al. to achieve the desired power factor in the apparatus of Connan to load the AC source."

Applicant disagrees with Examiners argument since the power factor discussed in Smallwood is the power factor of the 50/60 Hz power line. Smallwood states, "The power factor correction unit employed is designed to accept conventional 50/60 Hz A.C. power ..." (Col. 3, lns. 11-13). Applicants claim was drawn on the power factor of the high-frequency power delivered to the high-frequency ballasted-socket assembly, but as a result of the 112 rejection previously discussed, Applicant has withdrawn original Claim 10 and replaced it, eliminating any reference to power factor, with now Claim 31 as follows:

31. The luminaire described in claim 28, wherein the ballasted-socket assembly is
provided with a socket capable of receiving and supporting a long single-ended
lamp;
said luminaire requiring a support bracket to properly support the long single-ended
lamp;
said support bracket being provided as an integral part of the ballasted-socket assembly.

Since now Claim 31 no longer reads on the issue of power factor, Applicant respectfully request withdrawal of this rejection.

The Rejection Of Claim 11 On Connan In View of Erikson Is Overcome

The last Office Action rejected original Claim 11 stating, "Claim 11 is rejected under 35

U.S.C. 103(a) as being unpatentable over Connan in view of Erikson (U.S. Patent 729,303).

Regarding claim 11, Connan does not disclose a receptacle facing opposite directions and located on substantially the same axis. Erikson discloses two lamp sockets each having a receptacle capable of receiving a single ended lamp, the receptacles facing opposing directions and also located on substantially the same axis (Fig. 1).

It would have been obvious to one of ordinary skill in the art to use the receptacle of Erikson in the Connan apparatus to make the lamps face in opposing directions.”

Original Claim 11 has been rewritten as now Claim 32. Applicant respectfully requests reconsideration of this rejection, as now applicable Claim 32, for the following reasons:

(1) Applicant has modified original Claim 11 now Claim 32 to read:

“... wherein the ballasted-socket assembly includes two lamp sockets;
the lamp sockets each having a receptacle capable of receiving a single-ended lamp;
said single-ended lamp being a gas-discharge lamp; ...”

(2) The Erikson and the Connan reference both use incandescent lamps. The sockets in both cases merely provide two terminals to make contact with an incandescent lamp when inserted into the socket. The instant invention incorporates the ballasted-socket assembly, which incorporates the electronic circuitry to drive a gas-discharge lamp.

(3) Applicant has reviewed the Erikson and the Connan references in detail. There is no justification in Erikson or Connan, or in any other prior art separate from Applicant’s disclosure, which suggests that these references be combined, much less be combined in the manner proposed in the modification of original Claim 11.

(4) Erikson and Connan make no reference to what the advantages might be derived from doing so.

(5) The novel physical features of now Claim 32 produce new and unexpected results and hence are unobvious and patentable over the references. Applicant respectfully requests that Examiner withdraw her rejection of now Claim 32.

The Rejection Of Claim 20 On Smallwood In View of Sakakibara Is Overcome

The last Office Action rejected original Claim 20 stating, “Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smallwood in view of Sakakibara et al. (U.S.

Patent 5,796,210)

Regarding claim 20, Smallwood et al. discloses a pair of high-frequency input terminals (reference number 10) and a high-frequency ballasting circuit (Fig 3 as a whole) and a lamp socket for a single-ended lamp (Figs 2A and 2B). Smallwood et al. does not disclose the enclosure described in the claim.

Sakakibara et al. discloses an enclosure completely enclosing the high-frequency ballasting circuitry, the interconnecting wiring between the high-frequency input terminals and the high-frequency ballasting circuit, and the interconnecting wiring between the high-frequency ballasting circuit and the lamp socket for a single-ended lamp. (See the outer enclosure in Figs. 1 and 2, which encloses everything.)

It would have been obvious to one of ordinary skill in the art to use the enclosure of Sakakibara et al. in the apparatus of Smallwood et al. for enclosing the elements."

Examiner has stated, "Smallwood et al. discloses a pair of high-frequency input terminals (reference number 10)". Yet Smallwood clearly stated, "A conventional fluorescent power distribution system is shown in schematic diagram form in fig. 1 wherein standard input A.C. power 10 is introduced at the input terminals. In the United States, this input is usually 60 HZ at 110 or 220 volts A.C." (Col. 5, lns. 16-20). Applicant has defined high-frequency in his specification to be frequencies greater than 10 kHz (page 17, line 10).

Examiner has also stated, "Smallwood et al. discloses ... a high-frequency ballasting circuit (Fig 3 as a whole)". Yet Smallwood stated, "The major sections of the master ballast 20 are shown in sequential block form in Fig. 3 ... Output power switching is accomplished by a network of output diodes and filters 29 which finally produces the D.C. desired for the output bus 22." (Col. 5, lns. 56-65). Smallwood's description of what is disclosed in FIG.3 is that of a DC power supply that is connected to a 50 or 60 Hz power line and provides a DC voltage at its' output. FIG.3 is not a high-frequency ballasting circuit at all.

Examiner has further stated, "Smallwood et al. discloses ... a lamp socket for a single-ended lamp (Figs 2A and 2B)", but Smallwood states, "... shown in FIG. 2A wherein the main power 10 is connected in parallel to a plurality of lamps 11A-11N each of which is self sufficient in that it contains its own power handling elements ..." (Col. 5, lns 31-34) and "Fig 2B is likewise powered by a conventional power system ... This reduces the amount of circuitry that

each lamp 24 must incorporate thereby decreasing the volume of the module that is implanted in or attached to , the lamp envelope ..." (Col. 5, lns 37-44). Nowhere does Smallwood disclose a lamp socket for a single-ended lamp in (Figs 2A and 2B). To the contrary, Smallwood states that the circuitry is either implanted in or attached to the lamp envelope. There is no lamp socket disclosed in Smallwood.

Regarding Sakakibara et al., Applicant has added the following negative limitation to original Claim 20 now Claim 35, "said enclosure not enclosing a single-ended lamp."

Since Smallwood et al. does not disclose a pair of high-frequency input terminals in (reference number 10), nor a high-frequency ballasting circuit in (Fig 3 as a whole), and does not disclose a lamp socket for a single-ended lamp in (Figs 2A and 2B), and because Applicant has added the negative limitation to the claim to overcome the Sakakibara patent, Applicant respectfully requests that the Examiner withdraw her rejection of now Claim 35.

The Rejection Of Claim 23 On Smallwood In View of Sakakibara Is Overcome

The last Office Action rejected original Claim 23 stating, "Concerning claim 23, Smallwood et al. discloses a pair of input terminals (reference number 10), a ballasting circuit (Fig. 3 as a whole), a socket with output terminals that is capable of receiving, supporting and making electrical connections to a single-ended lamp (Figs. 2A and 2B); the input to the ballasting circuit being connected to the pair of input terminals (Fig. 3), the output of the ballasting circuit being connected to the output terminals within the socket (Fig. 2B), and the ballasting circuit being capable of properly igniting and powering a gas discharge lamp when provided with a high-frequency voltage on the pair of input terminals (abstract). Smallwood et al. does not disclose the enclosure as described in the claim.

Sakakibara et al. discloses an enclosure completely encapsulating the ballasting circuitry, the interconnection between the input terminals and the ballasting circuitry, the interconnection between the ballasting circuitry and the output terminals of the socket and the portion of the output terminals to which the ballasting circuitry connects. (See the outer enclosure in Figs. 1 and 2, which encloses everything.)"

Examiner has stated, "Smallwood et al. discloses ... a socket with output terminals that is capable of receiving, supporting and making electrical connections to a single-ended lamp (Figs.

2A and 2B, but Smallwood states, "... shown in FIG. 2A wherein the main power 10 is connected in parallel to a plurality of lamps 11A-11N each of which is self sufficient in that it contains its own power handling elements ..." (Col. 5, lns 31-34) and "Fig 2B is likewise powered by a conventional power system ... This reduces the amount of circuitry that each lamp 24 must incorporate thereby decreasing the volume of the module that is implanted in or attached to , the lamp envelope ..." (Col. 5, lns 37-44). Nowhere does Smallwood disclose a lamp socket for a single-ended lamp in (Figs 2A and 2B). To the contrary, Smallwood states that in FIG 2A each lamp is self sufficient in that it contains its own power handling elements and in FIG. 2B the circuitry is either implanted in or attached to the lamp envelope. There is no intervening socket between the circuitry and the lamp, but the circuitry is made a part of the lamp.

Examiner has stated, "Smallwood et al. discloses ... the output of the ballasting circuit being connected to the output terminals within the socket (Fig. 2B) ...", but since there is no intervening socket disclosed in Smallwood Fig. 2B this element of the instant invention is not disclosed in Smallwood.

Examiner has stated, "Smallwood et al. discloses ... the ballasting circuit being capable of properly igniting and powering a gas discharge lamp when provided with a high-frequency voltage on the pair of input terminals (abstract)." The pair of input terminals to which a high-frequency voltage is to be provided referred to in original Claim 23 now Claim 38 are the input terminals of the ballasting circuit. Smallwood et al. discloses a pair of input terminals (reference number 10), but Smallwood clearly stated, "A conventional fluorescent power distribution system is shown in schematic diagram form in fig. 1 wherein standard input A.C. power 10 is introduced at the input terminals. In the United States, this input is usually 60 HZ at 110 or 220 volts A.C." (Col. 5, lns. 16-20). This means that the input terminals in Smallwood are connected to a low-frequency voltage (60 Hertz) not a high-frequency voltage (greater than 10,000 Hertz) as disclosed in instant invention.

Regarding Sakakibara et al., Applicant has added the following negative limitation to original Claim 23 now Claim 38, "said enclosure not enclosing a single-ended lamp."

Since Smallwood et al. does not disclose a socket with output terminals that is capable of receiving, supporting and making electrical connections to a single-ended lamp (Figs. 2A and 2B, does not disclose the output of the ballasting circuit being connected to the output terminals

within the socket (Fig. 2B), does not disclose the ballasting circuit being capable of properly igniting and powering a gas discharge lamp when provided with a high-frequency voltage on the pair of input terminals, and because Applicant has added the negative limitation to the claim to overcome the Sakakibara patent, Applicant respectfully requests that the Examiner withdraw her rejection of now Claim 38.

The Rejection Of Claim 21 On Smallwood In View of Sakakibara and Altman Is Overcome

The last Office Action rejected original Claim 21 stating, "Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smallwood et al. in view of Sakakibara et al. as applied to claim 20 above, and further in view of Altman et al. (U.S. Patent 6,217,190 B1).

Regarding claim 21, Smallwood et al. does not disclose the mounting tab. Altman discloses a mounting tab having holes capable of receiving screws (column 5, lines 25-30). The rest of the claim consists of functional language that is not given patentable weight. See M.P.E.P. 2114

It would have been obvious to one of ordinary skill in the art to use the mounting tab of Altman et al. in the apparatus of Smallwood et al. for attaching the ballast."

Examiner has stated, "Altman discloses a mounting tab having holes capable of receiving screws (column 5, lines 25-30), but Altman states, "If the housing base 10 comprises a stamped metal plate, the ballast circuit can be grounded to this base which can in turn be attached by screws or other fasteners to the metal troffer 80 ..." (Col. 5 lns 25-28). Here Altman is describing how the ballast circuit can be grounded not how a ballasted-socket assembly can be mounted.

Applicant has modified the last element of original Claim 21 now Claim 36 to read: said mounting base having holes capable of receiving screws whereby the ballasted-socket assembly is mounted directly to the underside of a cabinet or shelf.

Since Altman does not disclose a mounting tab having holes capable of receiving screws for the purpose of mounting anything similar to the ballasted-socket assembly of instant invention, nor does it or any of the other identified patents suggest how the patents could be combined to achieve the result disclosed in now Claim 36, Applicant respectfully request that Examiner withdraw her rejection of original Claim 21 now Claim 36.

The Rejection Of Claim 22 On Smallwood In View of Sakakibara and Herst Is Overcome

The last Office Action rejected original Claim 22 stating, "Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smallwood et al. in view of Sakakibara et al. as applied to claim 20 above, and further in view of Herst et al.(U.S. Patent 5,276,597).

Regarding claim 22, Herst et al. discloses a reflector (reference number 99) installed between the ballasted socket assembly (reference number 103) and the underside of the cabinet or shelf (Fig. 4).

It would have been obvious to one of ordinary skill in the art to use the reflector arrangement taught in Herst et al. in the apparatus of Smallwood et al. to form an easily-installed subassembly and to reflect light."

Original Claim 22 has been rewritten as now Claim 37. Applicant respectfully requests reconsideration of this rejection, as now applicable Claim 37, for the following reasons:

- (1) Applicant has reviewed the Herst reference in detail. There is no justification in Herst, Smallwood, and Sakakibara or in any other prior art separate from Applicant's disclosure, which suggests that these references be combined, much less be combined in the manner proposed.
- (2) Herst, Smallwood, and Sakakibara make no reference to what the advantages might be derived from doing so.
- (3) Applicant has added the limitation, "; and a lamp being inserted into the ballasted-socket assembly whereby said lamp and said ballasted-socket assembly are located on the same side of the reflector.
- (4) The reflector in Herst is clearly mounted between the ballast 103 and lamp 93
- (5) The novel physical features of now Claim 37 produce new and unexpected results and hence are unobvious and patentable over the references. Applicant respectfully requests that Examiner withdraw her rejection of now Claim 37.

The Rejection Of Claim 24 On Smallwood In View of Sakakibara and Echito Is Overcome

The last Office Action rejected original Claim 24 stating, "Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smallwood et al. in view of Sakakibara et al. as applied to claim 23 above and further in view of Echito (U.S. Patent 6,390,652).

Regarding claim 24, Smallwood et al. does not disclose an insulation-displacement

connector connecting the input terminals to the high-frequency voltage source. Echito discloses an insulation-displacement connector being used for electrical connection purposes (abstract).

Using the insulation-displacement connector to connect a high-frequency voltage source to an input terminal is considered to be an obvious variation in design. Since the insulation-displacement connector is well known in the art, it would have been obvious to one of ordinary skill in the art to use an insulation-displacement connector in the Smallwood et al. reference for connecting the power source to the input terminal.”

Original Claim 24 has been rewritten as now Claim 39. Applicant respectfully requests reconsideration of this rejection, as now applicable Claim 39, for the following reasons:

(1) Applicant has added the following limitation to overcome the Echito reference:

said arrangement being further characterized in that the arrangement is provided with a single insulation-displacement connector.

Echito clearly shows in fig. 8 and describes in Col 2, lines 12-14, that his light unit incorporates two insulation displacement connectors stating, “... at least two insulation displacement connectors mounted at diametrically opposite portions of the housing adjacent to the mounting surface ...”

(2) Applicant has reviewed the Echito reference in detail. There is no justification in Echito, Smallwood, and Sakakibara or in any other prior art separate from Applicant’s disclosure, which suggests that these references be combined, much less be combined in the manner proposed in now Claim 39 with the added limitation.

(3) The novel physical features of now Claim 39 produce new and unexpected results and hence are unobvious and patentable over the references. Applicant respectfully requests that Examiner withdraw her rejection of now Claim 39.

The Rejection Of Claim 25 On Smallwood Is Overcome

The last Office Action rejected original Claim 25 stating, “Concerning claim 25, Smallwood et al. does not disclose an insulation-displacement connector through which the wire can be run in any one of four possible orientations.

Running the wire through the insulation-displacement connector as described in the claim is considered to be an obvious variation in design. Since the insulation-displacement connector is well known in the art, it would have been obvious to one of ordinary skill in the art

to run the wire through it as desired for conducting electricity to the appropriate place.”

Original Claim 25 has been rewritten as now Claim 40. Applicant respectfully requests reconsideration of this rejection, as now applicable Claim 40, for the following reasons:

(1) Applicant has added the following limitation to clarify the claim:

... arrangement is provided with a mounting base;

said mounting base including two recessed channels oriented at right angles with respect to each other;

said mounting base also including two high-frequency input terminals positioned at the intersection of the two channels;

said high-frequency input terminals being suitable for making an insulation displacement connection to a high-frequency output cord;

the arrangement being designed so that the mounting base will make proper connection to the high-frequency output cord in any one of four possible orientations.

(2) Applicant agrees that the insulation-displacement connector is well known in the art.

Applicant has been active in Electrical Engineering for over 30 years and has never seen an insulation displacement connector arrangement as disclosed in now Claim 40 that has two separate channels intersecting at right angles with each channel capable of accepting and making connection to a two conductor cable. In most cases, there is no advantage to the disclosed arrangement and I have not been able to think of another application in which it would be desirable.

(3) Examiner has not provided any prior art reference that discloses such an arrangement.

(4) Nor has the Examiner provided any motivation that would warrant the cost of adding this feature to a device.

(5) The novel physical features of now Claim 40 produce new and unexpected results and hence are unobvious and patentable over the reference. Applicant respectfully requests that Examiner withdraw her rejection of now Claim 40.

Applicant's response to Additional Relevant Prior Art

Applicant has reviewed the BELFER prior art reference that the Examiner has provided with the latest Office Action. BELFER shows a fluorescent lighting fixture that provides shadowless and continuous linear lighting.

Conclusion

For all of the above reasons, Applicant submits that the specification and claims are now in proper form, and that claims define patentably over the prior art. Therefore, Applicant submits that this application is now in condition for allowance, which action he respectfully solicits.

Request For Conditional Constructive Assistance

Applicant has amended the claims of this application so that they are proper, definite, and define novel structure, which is also unobvious. If for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 706.03(d) and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

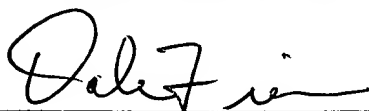
Very respectfully,

Dale Fiene

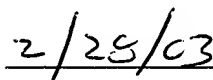
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Dale Fiene, Applicant



Date